

What is claimed is:

1. A method of manufacture of an integrated broadband reflective polarizing film comprising the steps
5 of:

inducing the orientation of a cholesteric liquid crystal solution and coating a plastic film with said cholesteric liquid crystal solution to make a cholesteric liquid crystal coated layer;

10 manufacture of a cholesteric liquid crystal layer through light-irradiation onto said cholesteric liquid crystal coated layer;

15 manufacture of a circularly polarized light separation layer through laminating of two or more cholesteric liquid crystal layers having different selective reflection wavelength regions in order from a shorter wavelength to a longer wavelength;

laminating a retardation film onto said circularly polarized light separation layer; and

20 forming prism patterns by using a UV-curing resin onto the opposite side of said retardation film.

2. The method of manufacture of an integrated broadband reflective polarizing film of claim 1,

characterized by that said cholesteric liquid crystal solution is a mixture of a curable nematic liquid crystal material and a curable chiral liquid crystal material.

5 3. The method of manufacture of an integrated broadband reflective polarizing film of claim 1, characterized by using a laminated coating method including a step of attaching a retardation film onto the shortest-wavelength cholesteric liquid crystal layer side of said
10 circularly polarized light separation layer.

4. The method of manufacture of an integrated broadband reflective polarizing film of claim 1, characterized by that said prism patterns are formed by
15 coating a UV-curing resin to have a thickness of 15 - 25 µm and passing through a roll having prism patterns etched to have an index of refraction of greater than 1.6.

5. The method of manufacture of an integrated
20 broadband reflective polarizing film of claim 4, characterized by that the angle of said prism patterns is between 50 to 150 degrees.

6. An integrated broadband reflective polarizing

film characterized by having two or more cholesteric liquid crystal layers having different selective reflection wavelength regions laminated in order from a shorter wavelength to a longer wavelength, a circularly polarized light separation layer having visible light regions as selective reflection wavelength regions, a retardation film laminated on top of said two or more cholesteric liquid crystal layers, and prism patterns formed onto the opposite side of said two or more cholesteric liquid crystal layers.

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7. The integrated broadband reflective polarizing film of claim 6, characterized by that said cholesteric liquid crystal layers are manufactured by coating with a mixture of a curable nematic liquid crystal material and a curable chiral liquid crystal material and curing with UV light.

8. The integrated broadband reflective polarizing film of claim 6, characterized by that said prism patterns are formed by coating a UV-curing resin to have a thickness of 15 - 25 μm and passing through a roll having prism patterns etched to have an index of refraction of greater than 1.6.

9. The integrated broadband reflective polarizing film of claim 8, characterized by that the angle of said prism patterns is between 50 to 150 degrees.

5 10. A liquid crystal display device equipped with said integrated broadband reflective polarizing film in any of claims 6 through 9.

11. The liquid crystal display device of claim 10,
10 characterized by that said integrated broadband reflective polarizing film is positioned between a backlight unit and a liquid crystal cell unit.